Part Name- Stem

Seemanshi Mall

DESCRIPTION

The stem is a significant component of a bicycle, which connects the handlebars to the steerer tube of the bicycle fork. The stem of the cycle affects the balance of the bicycle as well as handles the way our upper body feels the road. The stem appears to be a very mundane part of the cycle and hence gets often overlooked, but it has a very significant effect on the geometry of the bicycle and, thus, on the balance and mobility of the rider. The structure of the stems significantly influences a rider's posture and comfort on the bike.

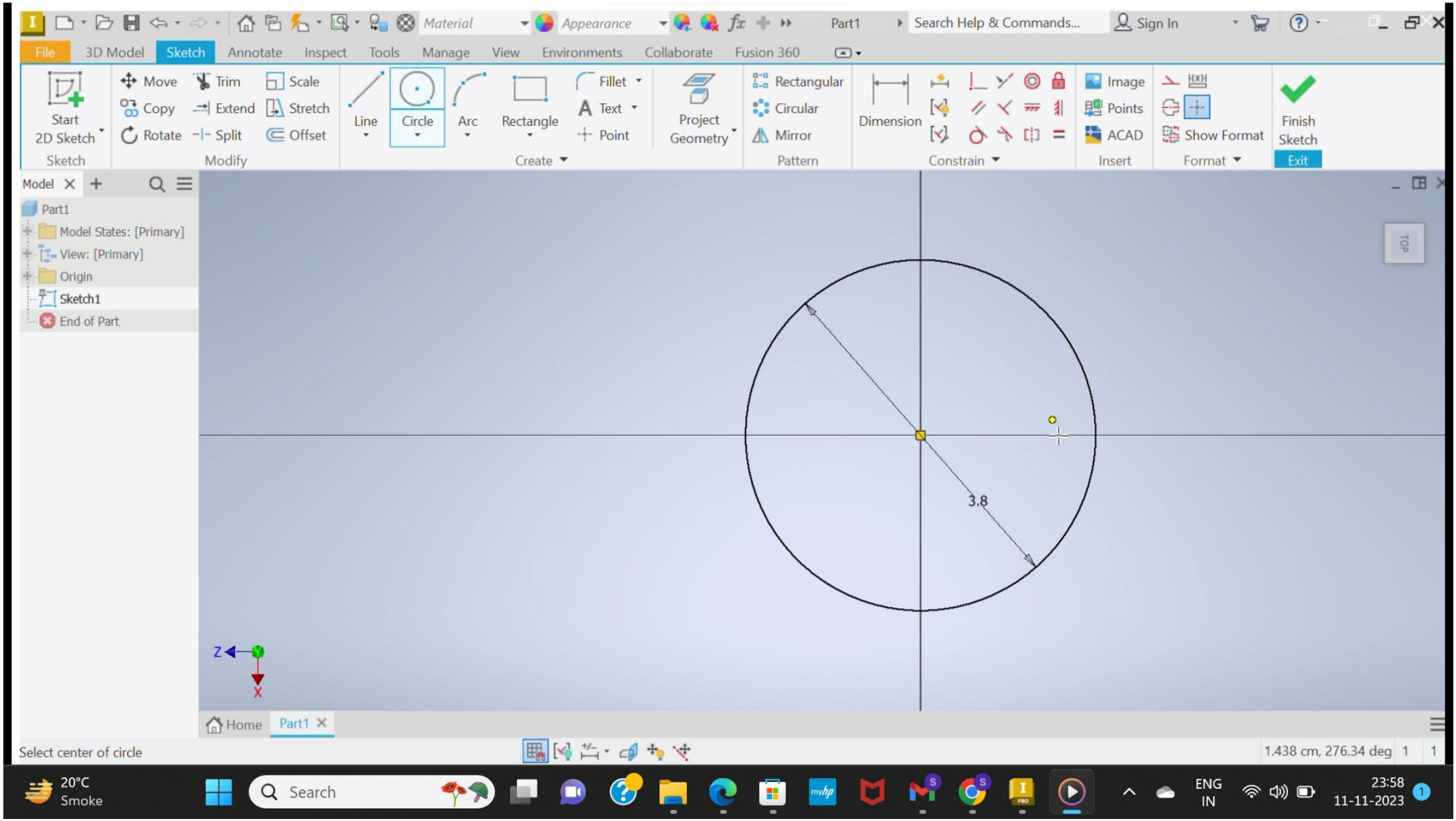
DIMENSIONS

Dimensions of a bike stem are:

1. Length=90 mm
2. Width=30 mm
3. Holes to fit the handlebar: Outer diameter = 30 mm
   Inner diameter = 20 mm
4. Hole for the headset: Outer diameter = 38mm
   Inner diameter = 30 mm

PROCESS OF CONSTRUCTION

1. Using Autodesk Inventor, I began the design process by first changing the dimensions to cm in document settings.
2. I then created 2D sketches on the XY plane, meticulously mapping out the dimensions and features of the bike stem. These sketches served as the blueprint, meticulously outlining every nuanced detail and dimension of the bike stem.
3. The transition from a 2D to a precise 3D model was achieved using features like extrusion. A crucial aspect of this intricate design involved the strategic incorporation of holes. These openings were not arbitrary but were carefully calculated, adhering to precise dimensions in terms of both radius and depth.
4. I created holes with accurate dimensions of radius and depth to seamlessly integrate the handlebar and headset into the design, ensuring a perfect fit.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View: [Primary]
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Sketch1
End of Part
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TOP
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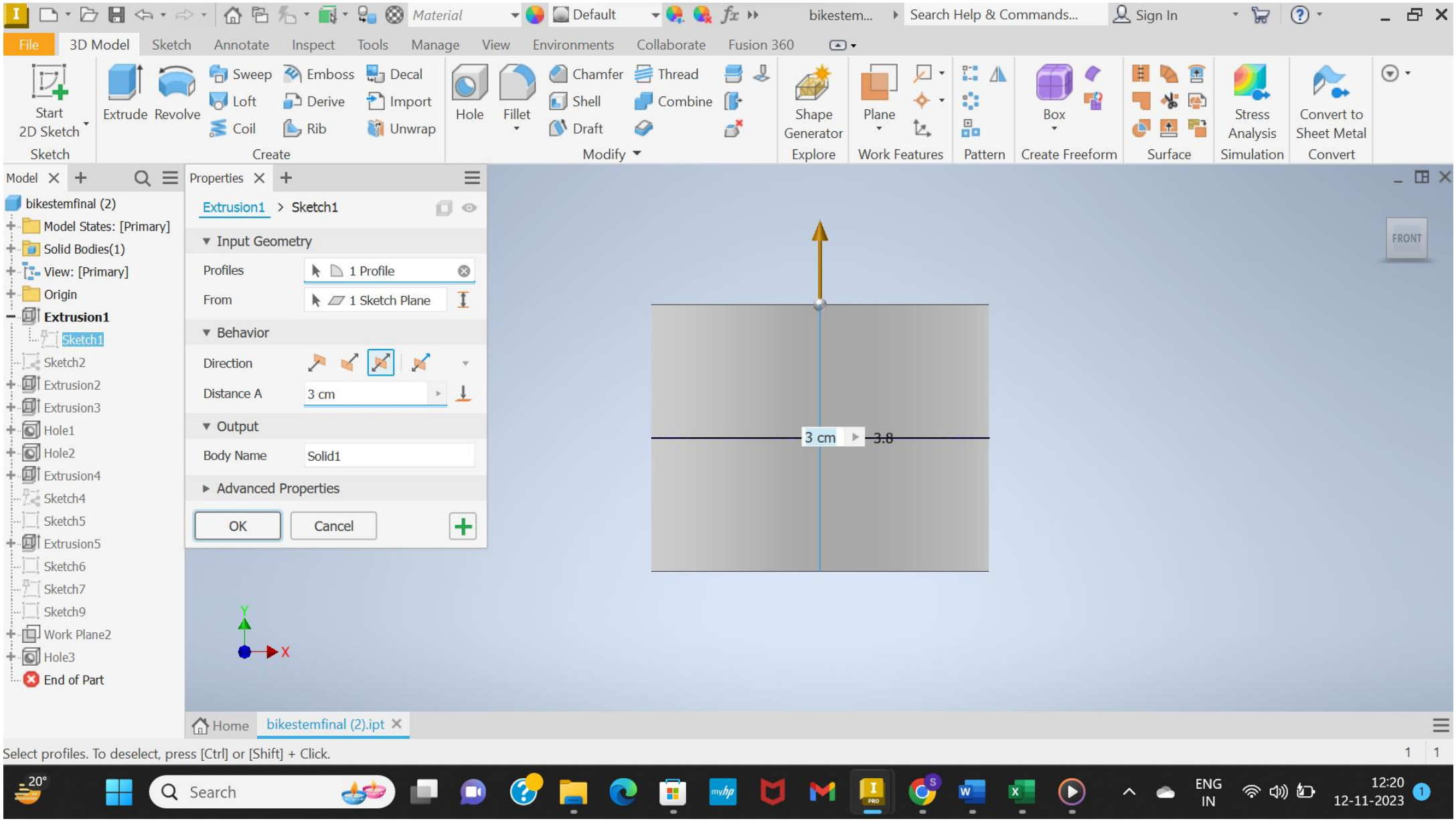
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Fillet
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Draft
Thread
Combine
Shape Generator
Plane
Box
Stress Analysis
Convert to Sheet Metal
Sketch
Create
Modify
Explore
Work Features
Pattern
Create Freeform
Surface
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Convert
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Solid Bodies(1)
View: [Primary]
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Extrusion1
Sketch1
Sketch2
Extrusion2
Extrusion3
Hole1
Hole2
Extrusion4
Sketch4
Sketch5
Extrusion5
Sketch6
Sketch7
Sketch9
Work Plane2
Hole3
End of Part
Properties
Extrusion1 > Sketch1
Input Geometry
Profiles
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Behavior
Direction
Distance A
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Body Name
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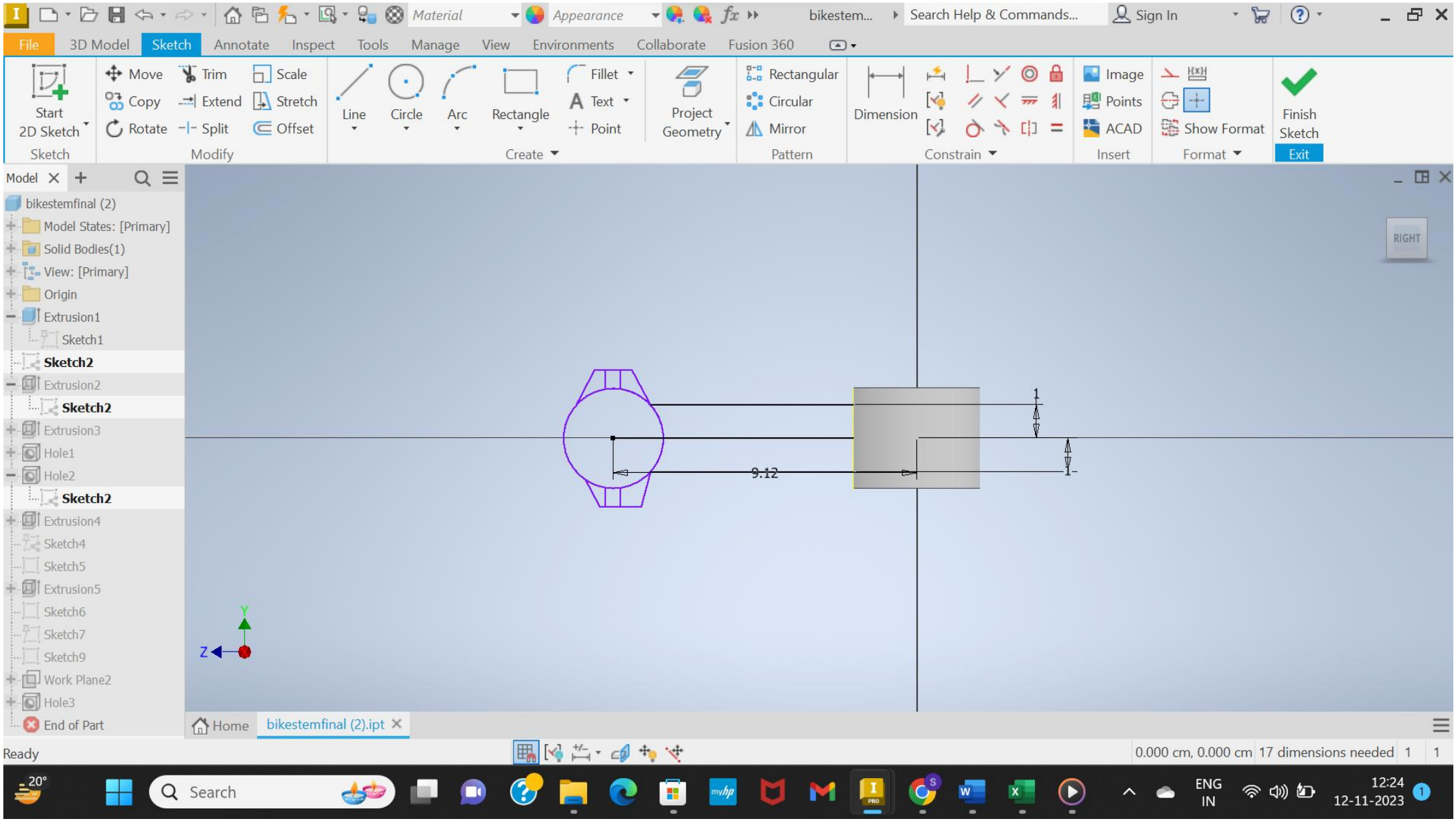
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Extrusion5
Sketch6
Sketch7
Sketch9
Work Plane2
Hole3
End of Part
RIGHT
9.12
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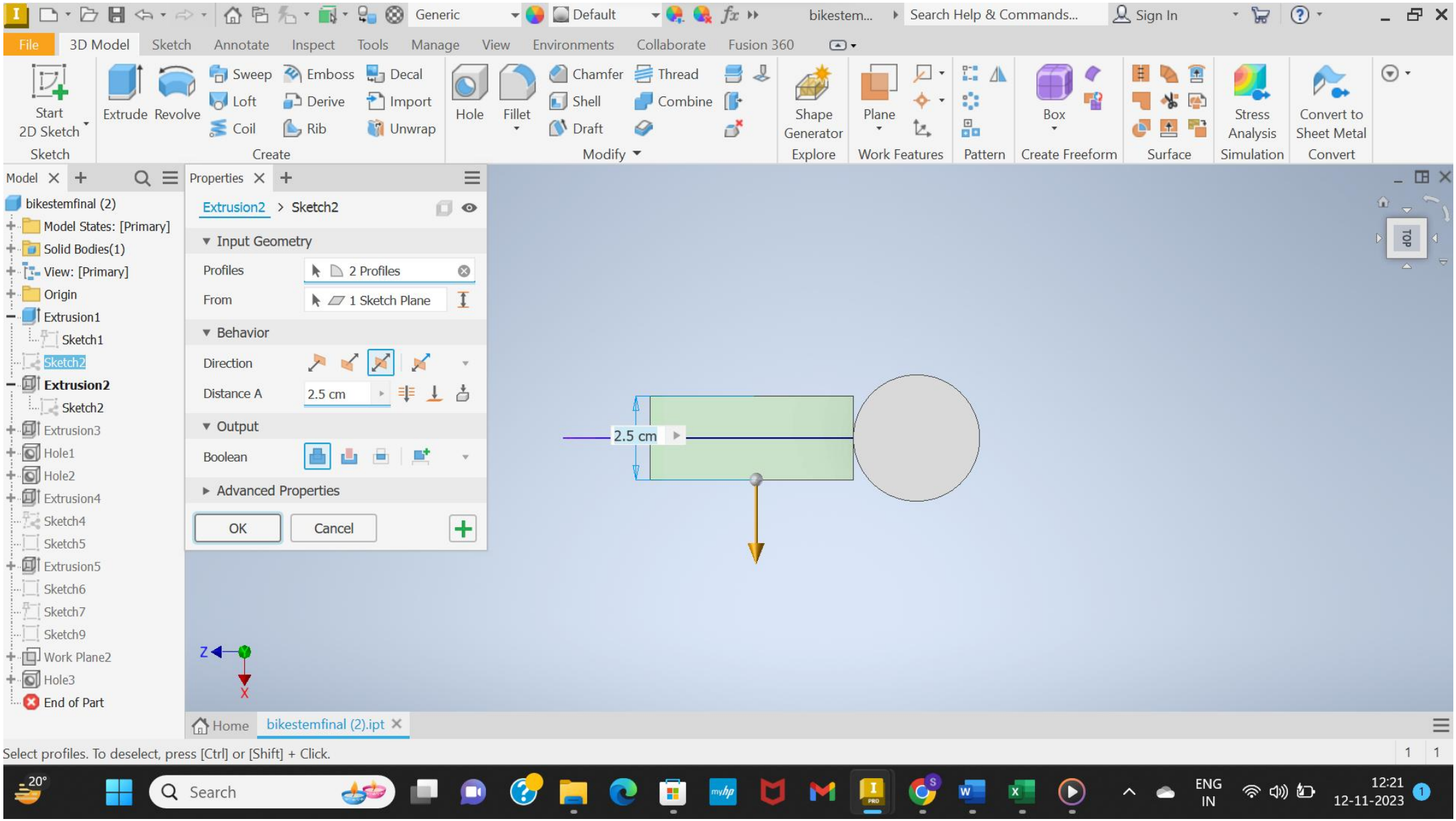
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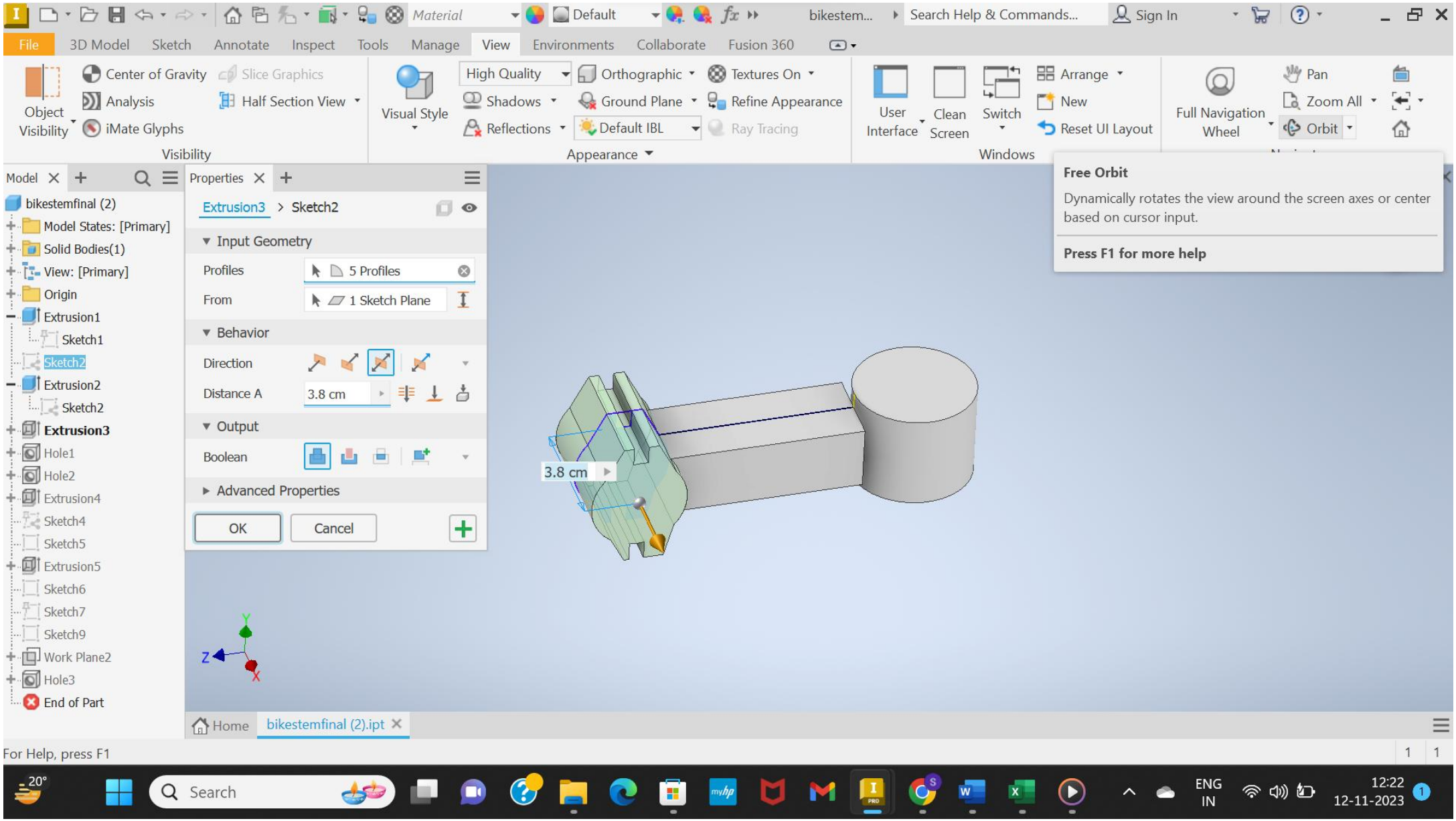
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Dynamically rotates the view around the screen axes or center based on cursor input.
Press F1 for more help
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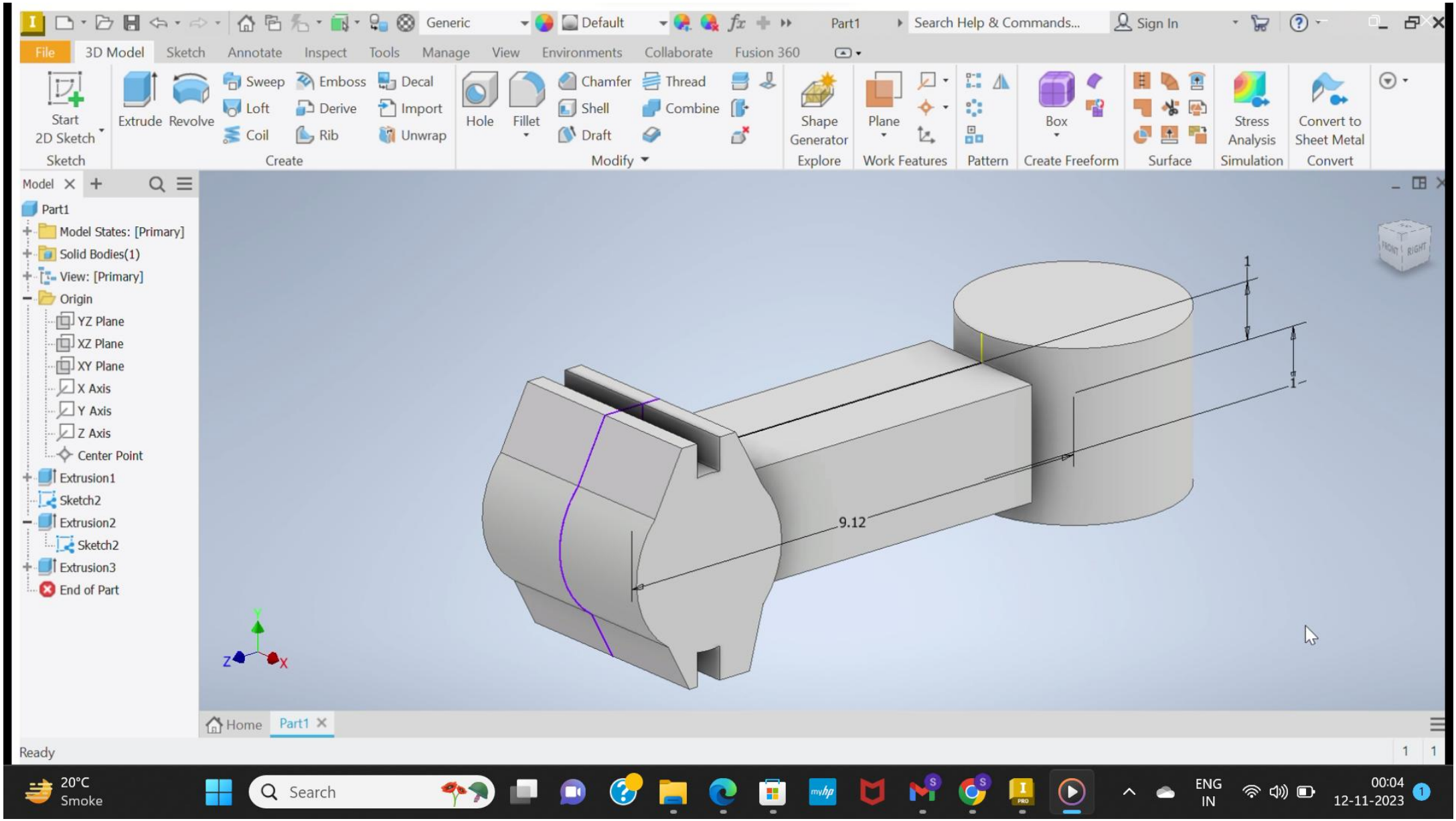
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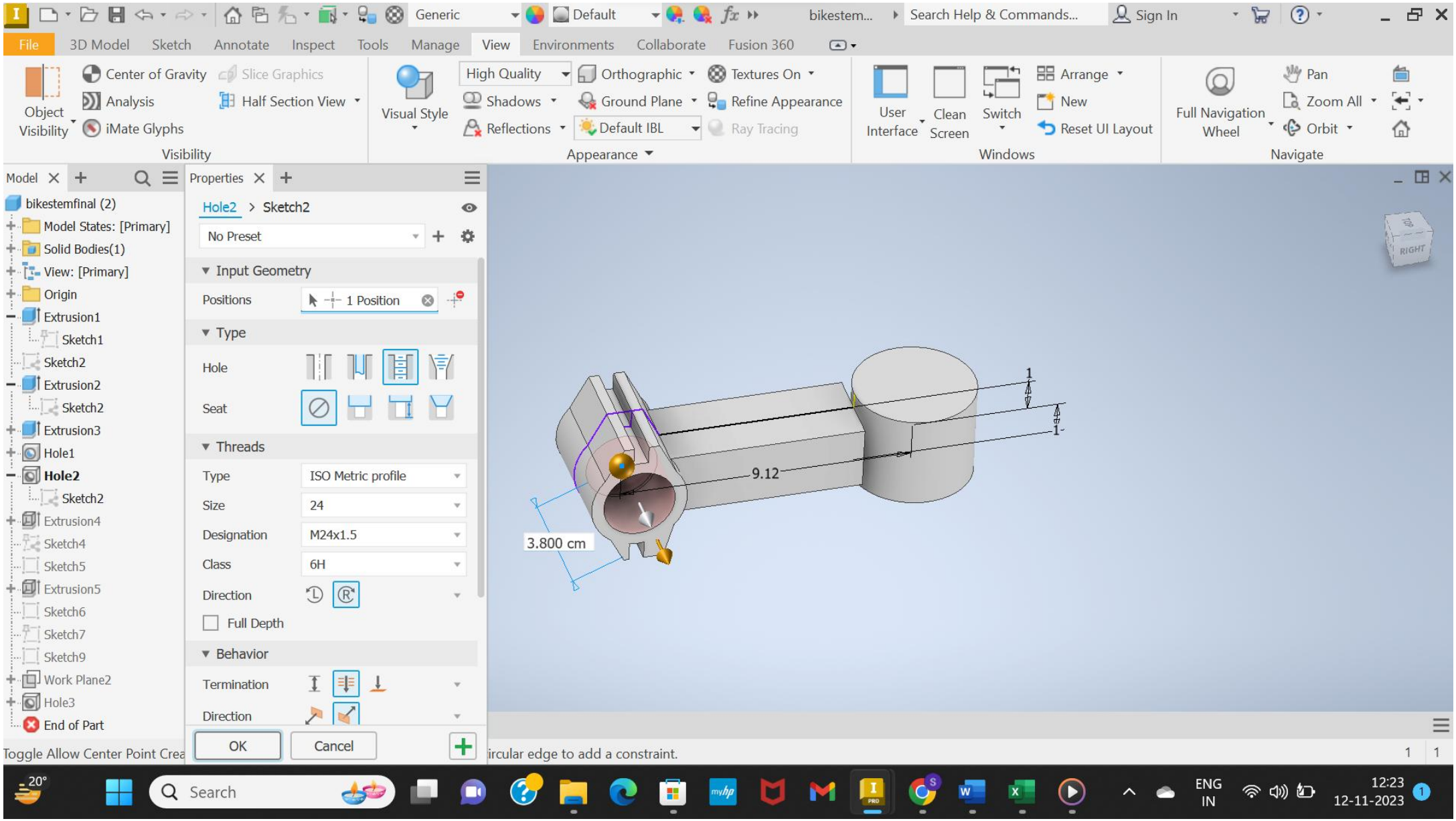
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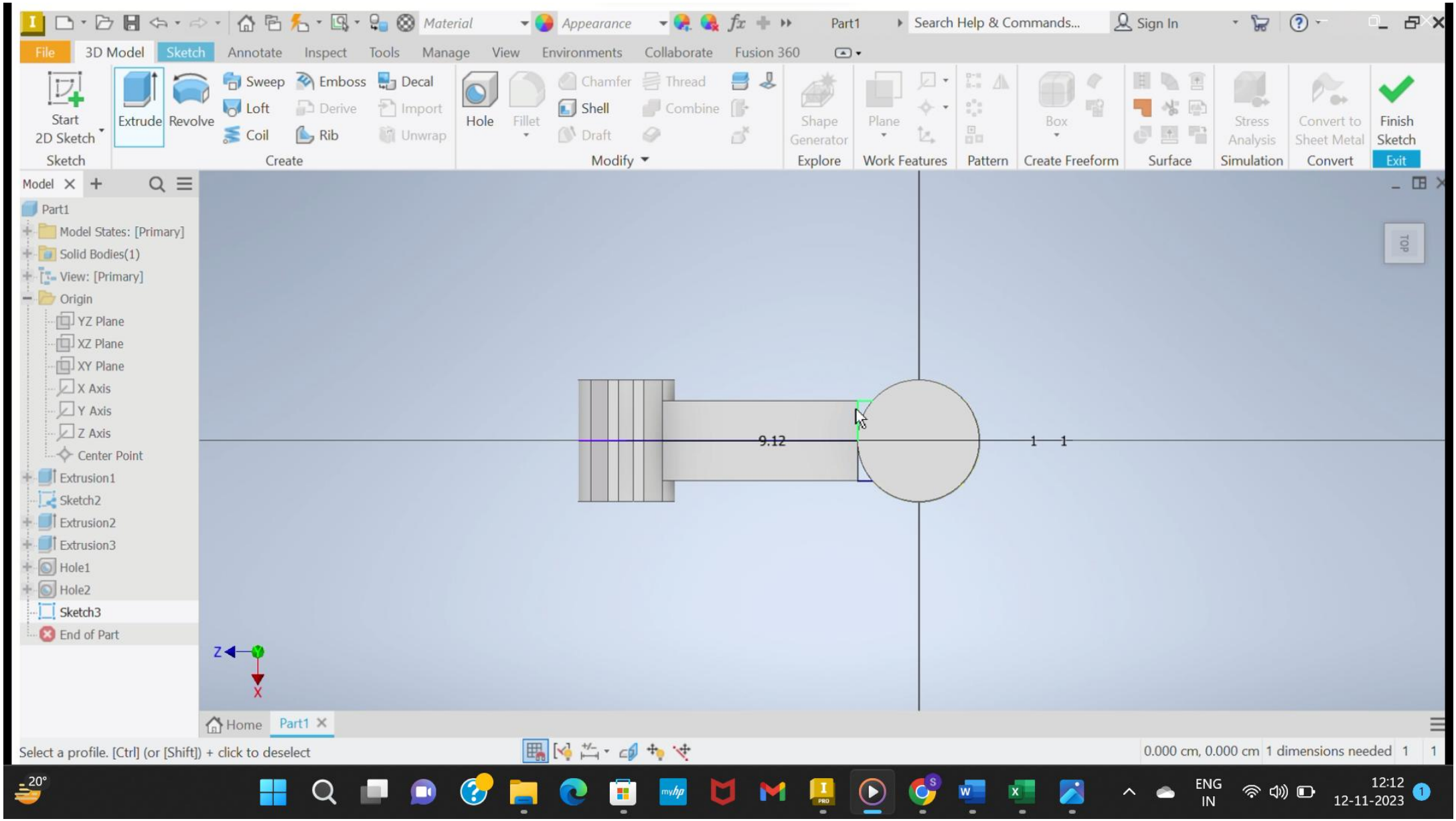
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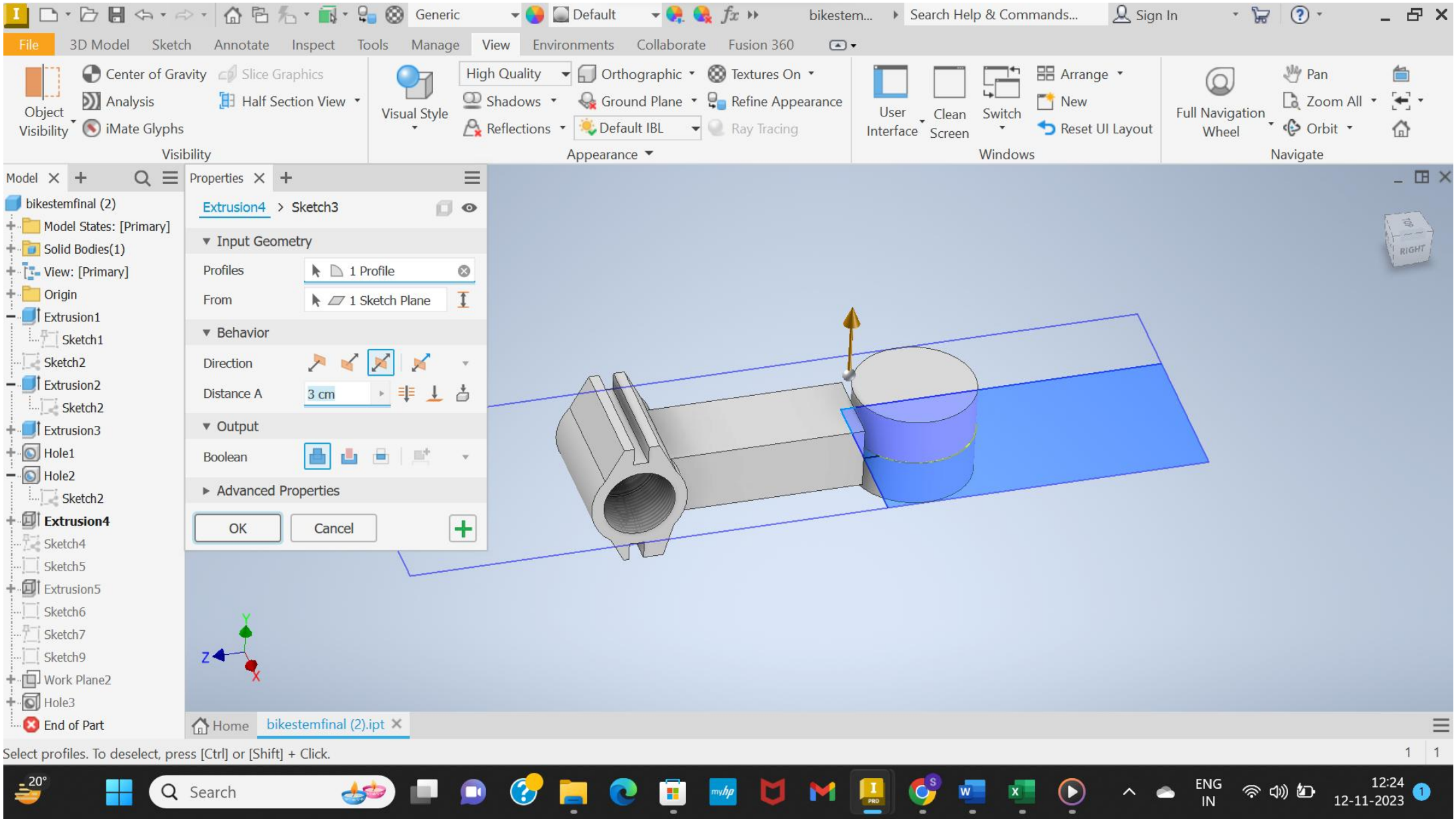
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Hole3
End of Part
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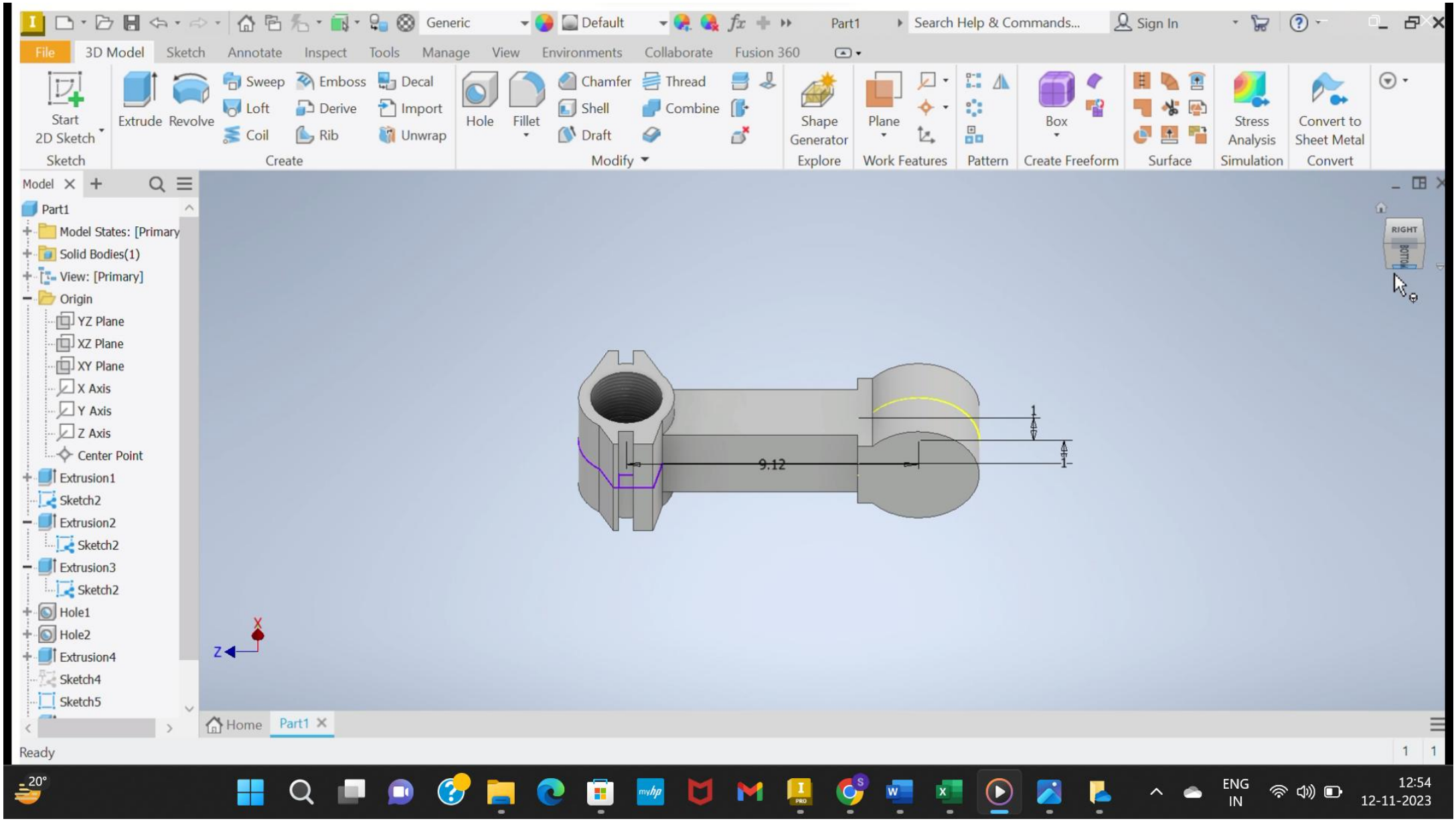
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Z Axis
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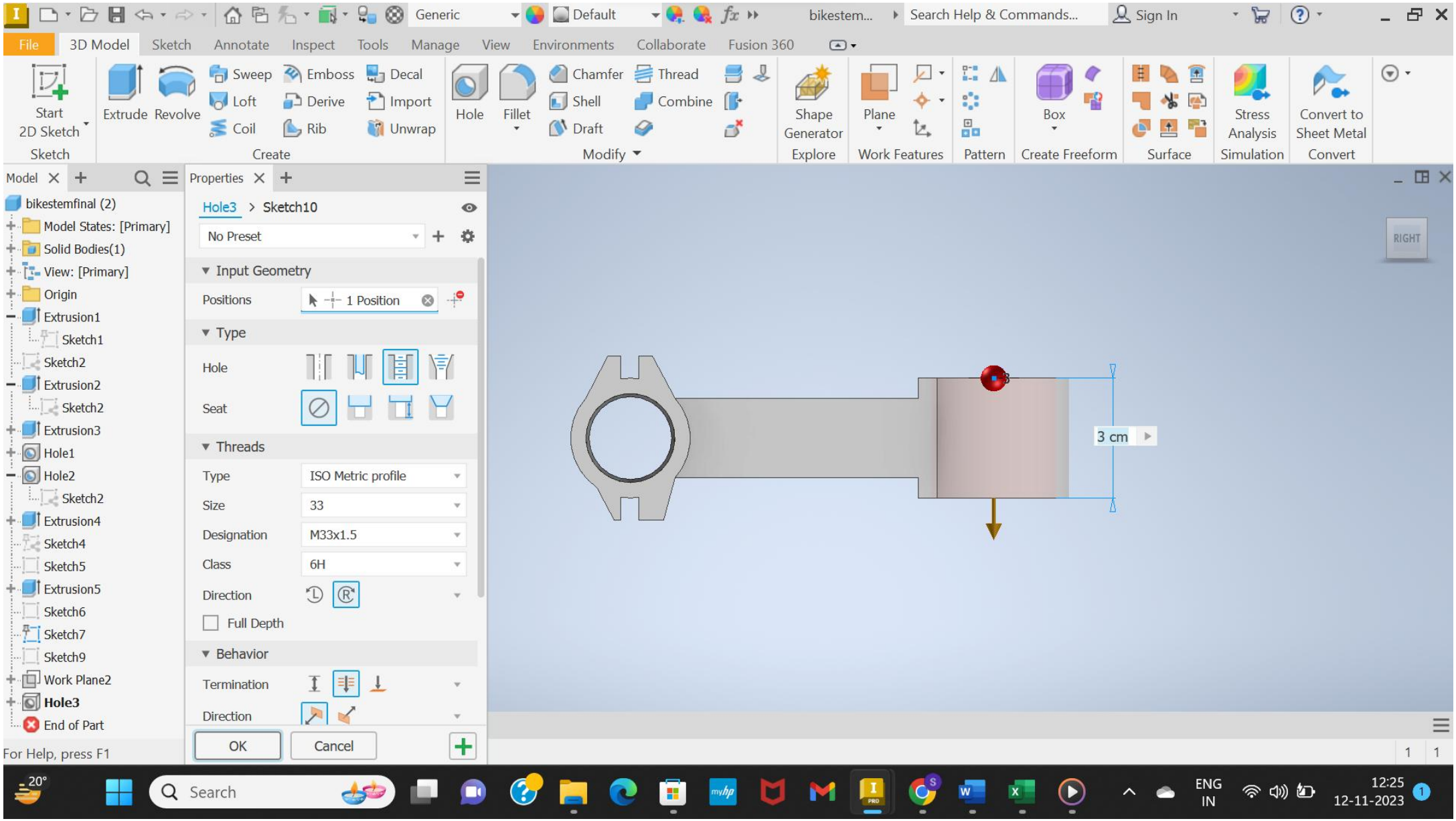
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Solid Bodies(1)
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Hole1
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Sketch2
Extrusion4
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Sketch5
Extrusion5
Sketch6
Sketch7
Sketch9
Work Plane2
Hole3
End of Part
Properties
Hole3 > Sketch10
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Positions
1 Position
Type
Hole
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Type
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Size
33
Designation
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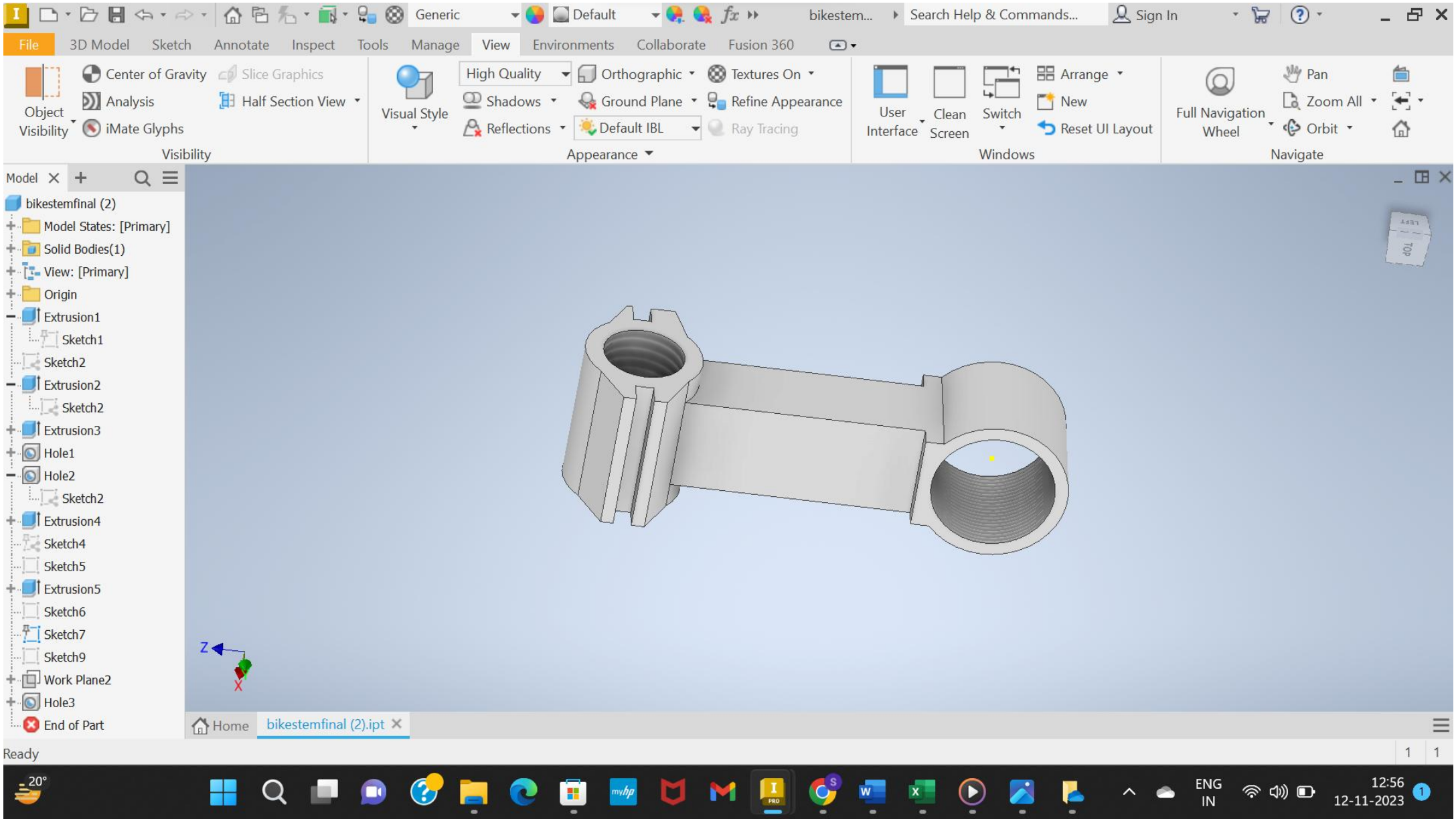
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Solid Bodies(1)
View: [Primary]
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Sketch1
Sketch2
Extrusion2
Sketch2
Extrusion3
Hole1
Hole2
Sketch2
Extrusion4
Sketch4
Sketch5
Extrusion5
Sketch6
Sketch7
Sketch9
Work Plane2
Hole3
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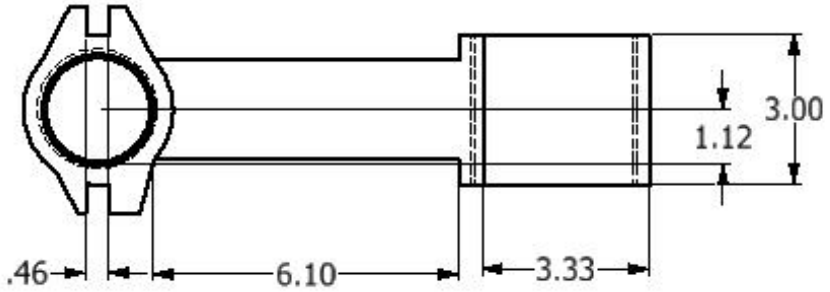
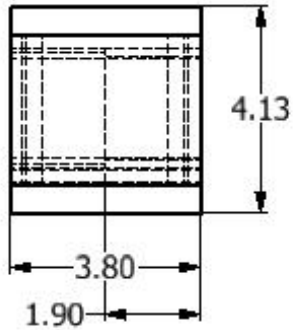


FRONT VIEW
SCALE 2:1



RIGHT SIDE VIEW
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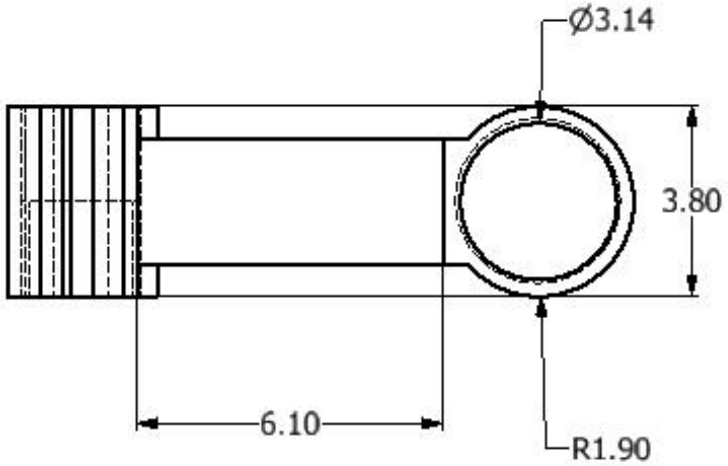

TOP VIEW
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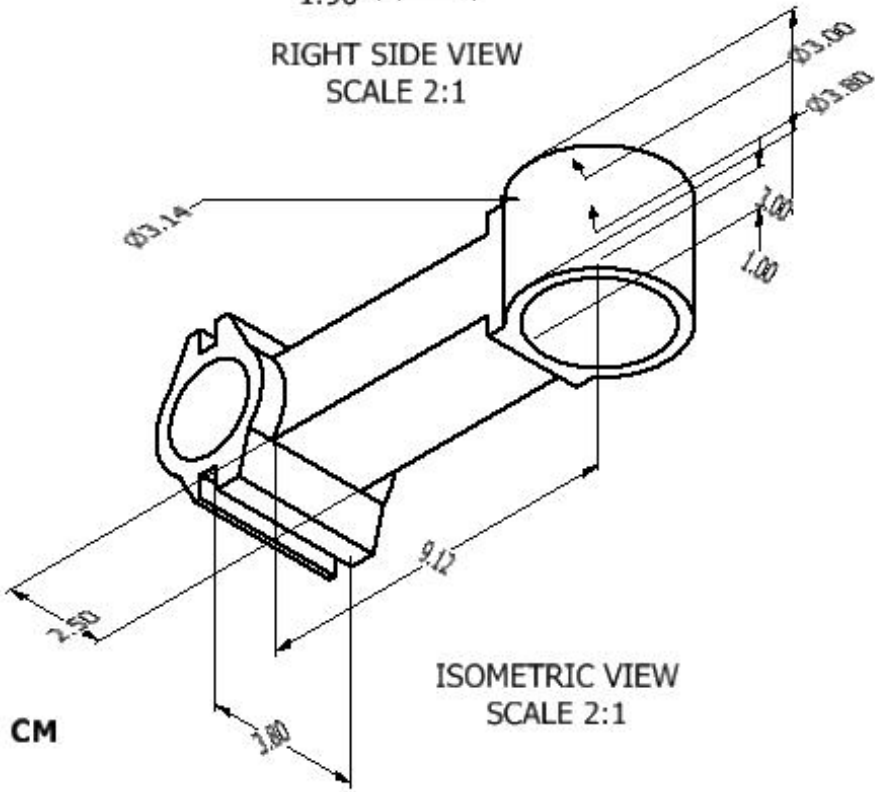

ISOMETRIC VIEW
SCALE 2:1

ALL DIMENSIONS IN CM